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## ABSTRACT

Two pilot studies are presented in the context of a discussion of the interpretation of anomalous sentences. In the first study, it was shown that naive language users differ in their judgments of the interpretability of semantically anomalous sentences; in the second, that they coincide in their ranking of the appropriateness of various contexts for the interpretation of anomalous sentences. It is argued that the concept of anomaly should be replaced by that of interpretability and that interpretability should be considered a cognitive strategy of searching for meaning. Implications for the psycholinguistic investigation of metaphor are considered. (AA)

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**The interpretation of semantic anomaly in context**

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Early psycholinguistic investigations were based on a linguistic theory in which syntax was central and isolated from semantics, i.e., Chomsky's transformational generative grammar (Chomsky, 1957). In these investigations, competence was central and isolated from performance, which was conceived of primarily as interference with the expression of the underlying competence. Years of investigation provided little support for the model of competence being tested, and the conflicting findings that emerged finally resulted in the recognition of the importance of semantics for a model of language (Greena, 1972). Moreover, several recent experiments have focused directly on the relative psychological reality of competence vs. performance models. Baker and Prideaux (1973) found that error frequencies in transforming sentences were not related to a formal generative grammar, but were related to a performance model. Ferris (1970) found that subjects judged sentences which violated Chomsky's selectional rules as permissible, i.e., grammatical. Ferris argued for the transferral of selectional rules either to a semantic component or to a performance theory of language. Further, if linguistic rules are considered as providing a model of competence (and are viewed as productive), one would not expect the results Kypriotaki (1973) obtained in eliciting the pronunciation and pluralization of nonsense words: subjects were inconsistent in the strategies they used, and generally unpredictable in their deviations from linguistically predicted responses. Finally, in a direct test of the compatibility of linguists' judgments with those of naive language users, Spencer (1973) found that naive subjects agreed fairly well with each other as to the acceptability of sentences,

but agreed with the linguists' intuitions regarding acceptability on only half of the sentences presented. Thus, there is considerable evidence that naive language users indicate there to be little psychological reality to models of competence as proposed by linguists.

Several trends in psycholinguistics have emerged as a result. Firstly, psycholinguists are focusing on the interaction between syntax and semantics (e.g., Hutson, 1973). Linguistic theories have also emerged in which syntax is no longer central, e.g. "generative semantics" (Lakoff, 1971). Secondly, aspects of performance such as processing strategies (e.g., Blaubergs, 1973) and individual differences in language acquisition (e.g., Ingram, 1974) are being investigated. A parallel trend in linguistics involving variation in competence is the study of register shift and idiolects. Thirdly, psychologists are formulating models of language not based directly on linguistic theory, and which incorporate context as a central concept (e.g., Olson, 1970; Schank, 1972).

These three trends, comprising a shifting perspective in psycholinguistics, will be focused on the interpretation of anomalous sentences. In Chomsky's theory, anomaly contrasted with grammaticality as in the now classic sentence: Colorless green ideas sleep furiously. The semantic theory formulated by Katz and Fodor (1963) to accompany Chomsky's model was concerned with the identification of anomaly. A grammatical, but anomalous, sentence would be rejected in the semantic component as uninterpretable. However, to the extent that anomaly coincides with metaphor, several theorists have attempted to explain the interpretability of sentences

identified as anomalous by linguistic theory. Bickerton (1969), Matthews (1971), and Thomas (1970), all attempted to explain metaphor within the confines of transformational generative grammar. Bickerton suggested the "marking" of a lexical item to permit its metaphorical use, e.g., green is marked for the attribute fertile, and thumb is an agent of fertility whereas ears are not, and thus green thumb is a metaphor while red thumb and green ears would be anomalous. Matthews criticized the circularity of Bickerton's suggestion, i.e., the metaphor has to be recognized before such marking can be determined, and the marking determines the item's availability as a metaphor. Matthews further suggests that given the proper context, almost any deviant sentence can be interpreted as metaphorical, e.g. green ears is not anomalous in The Sailor's profanity curled the seminarian's green ears. Both Matthews and Thomas suggest that metaphors break the same selection restriction rules as anomalous sentences, but that in metaphor the violation is intentional and the sentence interpretable. Clearly, the model of language involved would have to include performance as well as competence. Reddy (1969) is critical of linguistic attempts based on selection restriction violations to explain metaphor. His criticism in part is based on his claim that even sentences with concrete, nonanomalous interpretations can be interpreted as metaphors in an appropriate context. Thus, in the explanations of metaphor that go beyond adapting a competence model to including performance factors, the interpretation of metaphor is related to context. In a model of language that combines syntax and semantics, competence and performance, the identification of anomaly may well be replaced by interpretability. Further, interpretability may well be affected by context.

Two pilot studies based on this viewpoint will be presented. In the first experiment the interpretability of sentences violating linguistic rules was investigated. In the second experiment the differing degrees of interpretability for the same sentences in different contexts was investigated.

#### Experiment I

In a previously reported study (Blaubergs, 1974) 15 graduate students were asked to place each of 15 sentences into one of three categories. The three categories were identified as follows:

- A) those sentences that don't make any sense at all, that cannot be interpreted, e.g., Procrastination drinks duplicity;
- B) those sentences that have a metaphorical interpretation or that can be understood by extending the usual meaning of some part of the sentence, e.g., The volcano burped; and,
- C) those sentences that may appear nonsensical, e.g., John thinks with a fork, yet in appropriate context can be understood, e.g., How do you eat potatoes? John thinks with a fork.

For the third category, the subjects were asked to provide an appropriate context that would make the sentence understandable. The sentences all involved hypothetical linguistic rule violations (selection restriction and/or strict subcategorization rules). In over half the judgments (138/225), the anomalous sentences were classified as interpretable (categories B or C). Further, the results indicated that some subjects can interpret sentences that other subjects classify as uninterpretable and that linguists classify as anomalous. Also, the contexts provided by different subjects varied.

Spencer (1975) has questioned whether or not such contexts might also vary in appropriateness for the same subjects. The second study investigates whether or not subjects show agreement in the degree of acceptability of various contexts for the interpretation of linguistically anomalous sentences.

#### Experiment II

Eight sentences for which subjects provided contexts in Experiment I were used in this study. Thirty students, adults ranging in age from 17 to 45 years, none with any formal training in linguistics, were given a booklet of the eight sentences. Each page contained one sentence with five contexts for each sentence. Subjects were asked to rank order the degree of interpretability that each context provided for each of the sentences. The contexts used included those provided by the subjects in the first study and additional nonsensical ones to insure that each group of contexts included at least one which was invalid. The results were analyzed using the Friedman Two-Way Analysis of Variance of Ranks. The  $F$  values for the eight sentences were: 88.43 ( $p < .001$ ); 45.97 ( $p < .001$ ); 64.08 ( $p < .001$ ); 89.31 ( $p < .001$ ); 73.39 ( $p < .001$ ); 94.76 ( $p < .001$ ); 76.85 ( $p < .001$ ); and 55.79 ( $p < .001$ ). For all sentences, the  $F$  was significant at at least the  $p < .001$  level, indicating that for each sentence, subjects agreed amongst themselves as to the suitability of the contexts, ranking those contexts similarly. It may also be inferred from the results that a variety of contexts may aid in the interpretability of the same linguistically anomalous sentences, albeit to differing degrees.

### General Discussion

The findings of these two pilot studies as well as the recent trends in psycholinguistic research and theory converge on the proposed redefinition of anomaly as interpretability. The finding that anomalous sentences, i.e., sentences which violate linguistic rules, may or may not be interpretable points to an interaction between syntax and semantics in processing language. Recent work on the interpretation of metaphor within the framework of linguistic theory is also increasingly incorporating semantic considerations. For example, Lambert (1969) formulated a case grammar analysis of metaphor and anomaly, and Frentz (1974) devised and tested models for the interpretation of metaphor that were based on some of the tenets of generative semantics. Consistent with the view that interpretability may be more salient to language users than anomaly, Lambert contends that anomaly occurs when a sentence cannot be interpreted either literally or as a metaphor.

The findings of the two pilot studies that naive language users differ in their judgments of the interpretability of anomalous sentences and coincide in their ranking of the appropriateness of various contexts for the interpretability of anomalous sentences point to the role of strategies and context in the processing of language. The variation found in Experiment I and in the Kypriotaki (1973) study may be related to task demands: both tasks required some creative effort on the part of the subjects. The agreement among subjects found in Experiment II and in Spencer's (1973) study may also be related to task demands: in both cases subjects were asked only to make judgments. Although individual and universal strategies are of importance in a psycholinguistic model of language, task-specific strategies may or

may not relate to language structure and processing. Clark (1970) and Shannon (1973), suggest a relationship between strategies used in certain tasks and in normal processing. Clark contends that language users use their knowledge of language in determining the strategies of response on word association tasks. Shannon looked for and found strategies used by subjects in the forced interpretation of sentences violating agreement rules and contended that these were the same mechanisms used in the interpretation of non-deviant sentences.

It may be then that the interpretability of both difficult-to-process sentences and linguistically deviant sentences involves a general cognitive strategy of searching for meaning that is used in specific unnatural language tasks and also in normal language usage. Further support for this contention comes from Fillenbaum's (1970) study in which he asked subjects to paraphrase deviant sentences. Other subjects rated the paraphrases as more sensible than the original deviant expressions. Fillenbaum interprets his finding as indicating that subjects have an ability to impose interpretations on syntactically and/or semantically deviant utterances. Similarly, Hörmann (1971) contends that the interpretation of anomalous or metaphorical sentences should be viewed as a light that may eventually come on depending on the situation, the speaker's intentions, and the hearer's expectations. The strategy that he describes for the interpretation of anomaly and metaphor is one of taking notice of a particular connection. Thus meaning is not the existence of a connection, but the event of discovering it. He contrasts this view with that of the Katz and Fodor (1963) model which he describes

as having a sentence-stopping alarm bell for anomalous sentences.

In conclusion, the findings and discussion in this paper are recognized as tentative. Their intent is twofold: to advance the psycholinguistic investigation of metaphor; and, more generally, to provide some basic considerations for the further development of psycholinguistic theories of language. To these ends, it is suggested that the construct of anomaly be replaced by that of interpretability, that interpretability be considered a cognitive strategy of searching for meaning, and that the role of context be further investigated.

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